

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Christophe Gueret et al.

Examiner: Huy Tram Nguyen

Serial No.: 10/584,048

Group Art Unit: 1797

Filed: June 22, 2006

Confirmation No.: 6852

Title: METHOD FOR TREATING A HYDROCARBON FEEDSTOCK INCLUDING
RESIN REMOVAL

EDITED REMARKS

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REMARKS

The issues outstanding in the Office Action mailed October 10, 2008, are solely the rejections under 35 U.S.C. 102 and 103. Reconsideration of these issues, in view of the following discussion, is respectfully requested.

Rejection Under 35 U.S.C. 102

Claims 1, 8-9, 11, 14 and 15 have been rejected under 35 U.S.C. 102(b) over Cody '281. Reconsideration of this rejection is respectfully requested.

Cody discloses a process in which a lube oil/crude is a fractionated into at least four fractions, a light fraction, a medium fraction, a heavy fraction, and a bottoms fraction. See figure 2, streams 12, 14, 16 and 22. Paragraph 0054, noted at page 2 of the Office Action, does not teach that the heaviest fraction comprises at least 90% by weight of compounds which boil above

450 and below 700 °C, but instead teaches that “these distillate cuts” (referring to all three fractions separated in fractionator (10) in the reference) have boiling points ranging from 200 to 650 °C. In any event, the patent teaches sending any or all of these cuts through line 18 into extractor 30, in which solvent extraction results in an aromatic rich extract, for which further processing is not taught, and a paraffin rich raffinate, which is subjected to hydroconversion (see paragraph 0055). Extraction is conducted with phenol, furfural, or N-methyl pyrrolidone. See paragraphs 0031 and 0055.

The bottoms product of the fractionation in the patent is subjected to deasphalting, by extraction with C₃₋₅-alkanes to produce deasphalted oil. See (20) in figure 2 and paragraph 0054. Consequently, it is clear that the patent fails to anticipate the present claims, in which the “heavy” fraction, having a boiling point of 450 to 700 °C is subjected to solvent extraction, said extraction being conducted with a C₃₋₇ paraffin. (The paraffinic solvents of claims 1, 16 and 17 are disclosed in the present specification, for example, at page 5, line 16 and page 8, lines 8-10.) Whereas Cody, employing phenol, furfural or N-methyl pyrrolidone teaches that the extract is rich in aromatics, and indeed, since these solvents are more polar than C₃₋₇-paraffins, they would solubilize more polyaromatics, including resin). The patent therefore fails to suggest the present process in which a greater quantity of resin is precipitated due to the less polar nature of the solvent. Thus, the use of these paraffins enables an increase in the quality of the raffinate, and thus allows decreasing the necessary hydrocracking or cracking temperatures needed to achieve a desired result. As a result, not only does the patent fail to anticipate the present process in which the feed to extraction is not seen to be the same, and moreover different solvents are used producing a different raffinate, but the patent fails to suggest such a process as presently claimed. Accordingly withdrawal of the rejection is respectfully requested.

Rejection Under 35 U.S.C. 103

Claims 1-9, 11, 14 and 15 have been rejected under 35 U.S.C. 103 over Kozlowski ‘175 taken with Cody. Reconsideration of this rejection is respectfully requested.

Kozlowski discloses a process for the production of lubricating oils, by catalytic hydrogenation, in which a crude oil is distilled to obtain fractions boiling in the lubricating oil

range including a light and heavy fraction, and each fraction separately solvent treated to obtain raffinates. At least a portion of a heavy aromatic extract is then hydrogenated. Kozłowski does not disclose further treatment of the heavy raffinate, instead principally disclosing hydrogenation of the lighter raffinate. See, for example, the figure, in which the heavy lube is withdrawn without further treatment, and the heavy aromatic extracts and light aromatic extracts are subjected to hydrogenation. In any event, the extraction solvents disclosed in the patent are the same as those employed in Cody, discussed in connection with the rejection under 35 U.S.C. 102, phenol, furfural "and the like." See column 4, lines 13-16. As discussed in connection with the anticipation rejection, the use of these "well known" extraction solvents results in a raffinate which contains less precipitated resins and more polyaromatics in the solvent, with a resulting raffinate being of lesser quality than that produced in accordance with the present process. Accordingly, it is submitted that the use of a process, e.g., employing solvents such as those presently used is simply not suggested by the references, either singly or in combination. Accordingly, withdrawal of this rejection is also respectfully requested.

The claims of the application are submitted to be in condition for allowance. However, if the Examiner has any questions or comments, he or she is cordially invited to telephone the undersigned at the number below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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